We claim:

1. A process for separating a mixture comprising

a) a monoolefinically unsaturated compound which is obtainable by adding two terminal olefins which bear the functional groups required to prepare the monoolefinically unsaturated compound containing at least two functional groups, or a saturated compound obtained by hydrogenating such a compound,

b) a compound which is obtainable by adding more than two of the terminal olefins mentioned in a) or a compound obtained by hydrogenating such a compound,
and

c) a compound which contains a transition metal, is homogeneous with respect to the mixture and is suitable as a catalyst for preparing a monoolefinically unsaturated compound by adding two terminal olefins which bear the functional groups required to prepare the monoolefinically unsaturated compound containing at least two functional groups,

by means of a semipermeable membrane to obtain a permeate and a retentate in such a way that the weight ratio of component b) to component c) in the mixture fed to the semipermeable membrane is smaller than in the retentate.

2. A process as claimed in claim 1, wherein the component c) used is a rhodium-, ruthenium-, palladium- or nickel-containing compound.

3. A process as claimed in claim 1, wherein the component c) used is a rhodium-containing compound.

4. A process as claimed in any of claims 1 to 3, wherein the component c) used is a rhodium-containing compound which is homogeneous with respect to the mixture and is of the formula $[L^1RhL^2L^3R]^+X^-$ where

$L^1$ is an anionic pentahapto ligand;
$L^2$ is an uncharged 2-electron donor;
$L^3$ is an uncharged 2-electron donor;
R is selected from the group consisting of H, $C_1$-$C_{10}$-alkyl, $C_6$-$C_{10}$-aryl and $C_7$-$C_{10}$-aralkyl ligands;

$X^-$ is an uncoordinating anion;

and where two or three of $L^2$, $L^3$ and R are optionally joined.

5. A process as claimed in claim 4, wherein $L^1$ is pentamethylcyclopentadienyl.

6. A process as claimed in either of claims 4 and 5, wherein $X^-$ is selected from the group consisting of $BF_4^-$, B(perfluorophenyl)$_4^-$, B(3,5-bis(trifluoromethyl)phenyl)$_4^-$, Al$(OR^F)_4^-$ where $R^F$ is identical or different fluorinated or perfluorinated aliphatic or aromatic radicals.

7. A process as claimed in any of claims 4 to 6, wherein $L^2$ and $L^3$ are each independently selected from the group consisting of $C_2H_4$, $CH_2$=$CHCO_2Me$, $P(OMe)_3$ and $MeO_2C$-$(C_4H_6)$-$CO_2Me$.

8. A process as claimed in any of claims 4 to 6, wherein $L^2$ and $L^3$ together are selected from the group consisting of acrylonitrile and 5-cyanopentenoic ester.

9. A process as claimed in any of claims 4 to 7, wherein $L^2$ and R together are -$CH_2$-$CH_2CO_2Me$.

10. A process as claimed in any of claims 4 to 7 or 9, wherein $L^2$, $L^3$ and R together are $MeO_2C(CH_2)_2$-(CH)-$(CH_2)CO_2Me$.

11. A process as claimed in claim 3, wherein the component c) used is a compound selected from the group consisting of

$[Cp^*Rh(C_2H_4)_2H]^+ BF_4^-$,
$[Cp^*Rh(P(OMe)_3)(CH_2=CHCO_2Me)(Me)]^+ BF_4^-$,
$[Cp^*Rh(-CH_2-CH_2CO_2Me)(P(OMe)_3)]^+ BF_4^-$,
$[Cp^*Rh(MeO_2C(CH_2)_2-(CH-)-(CH_2)CO_2Me)]^+ BF_4^-$,
$[Cp^*Rh(C_2H_4)_2H]^+$ B(3,5-bis(trifluoromethyl)phenyl)$_4^-$,
$[Cp^*Rh(P(OMe)_3)(CH_2=CHCO_2Me)(Me)]^+$ B(3,5-bis(trifluoromethyl)phenyl)$_4^-$,
$[Cp^*Rh(-CH_2-CH_2CO_2Me)(P(OMe)_3)]^+$ B(3,5-bis(trifluoromethyl)phenyl)$_4^-$,
$[Cp^*Rh(MeO_2C(CH_2)_2-(CH-)-(CH_2)CO_2Me)]^+$ B(3,5-bis(trifluoromethyl)phenyl)$_4^-$,
$[Cp^*Rh(C_2H_4)_2H]^+$ B(perfluorophenyl)$_4^-$,
$[Cp^*Rh(P(OMe)_3)(CH_2=CHCO_2Me)(Me)]^+$ B(perfluorophenyl)$_4^-$,
$[Cp^*Rh(-CH_2-CH_2CO_2Me)(P(OMe)_3)]^+$ B(perfluorophenyl)$_4^-$ $[Cp^*Rh(MeO_2C(CH_2)_2-(CH-)-(CH_2)CO_2Me)]^+$ B(perfluorophenyl)$_4^-$,
$[Cp^*Rh(C_2H_4)_2H]^+$ Al$(OR^F)_4^-$,

$[Cp^*Rh(P(OMe)_3)(CH_2=CHCO_2Me)(Me)]^+ Al(OR^F)_4^-$,
$[Cp^*Rh(-CH_2-CH_2CO_2Me)(P(OMe)_3)]^+ Al(OR^F)_4^-$ and
$[Cp^*Rh(MeO_2C(CH_2)_2-(CH-)-(CH_2)CO_2Me)]^+ Al(OR^F)_4^-$,

where $R^F$ is identical or different part-fluorinated or perfluorinated aliphatic or aromatic radicals.

12. A process as claimed in any of claims 1 to 11, wherein the compound a) used is a compound selected from the group consisting of adipic diester, adiponitrile, 5-cyanovaleric ester, 1,4-butenedinitrile, 5-cyanopentenoic ester and hexenedioic diester.

13. A process as claimed in any of claims 1 to 12, wherein a membrane which comprises substantially one or more organic or inorganic materials.

14. A process as claimed in any of claims 1 to 13, wherein the mean average pore size of the membrane is in the range from 0.9 to 50 nm in the case of inorganic membranes.

15. A process as claimed in any of claims 1 to 13, wherein the mean average separation limit of the membrane is in the range from 500 to 100000 daltons in the case of organic membranes.

16. A process as claimed in any of claims 1 to 15, wherein the ratio of the pressure on the retentate side of the membrane to the pressure on the permeate side of the membrane is in the range from 2 to 100.

17. A process as claimed in any of claims 1 to 16, wherein a pressure in the range from 0.1 to 10 MPa is applied on the retentate side of the membrane.

18. A process as claimed in any of claims 1 to 17, wherein a pressure in the range from 1 to 1000 kPa is applied on the permeate side of the membrane.

19. A process as claimed in any of claims 1 to 18, wherein the membrane separation is carried out at a temperature in the range from 0 to 150°C.